

# Long COVID and Therapeutics

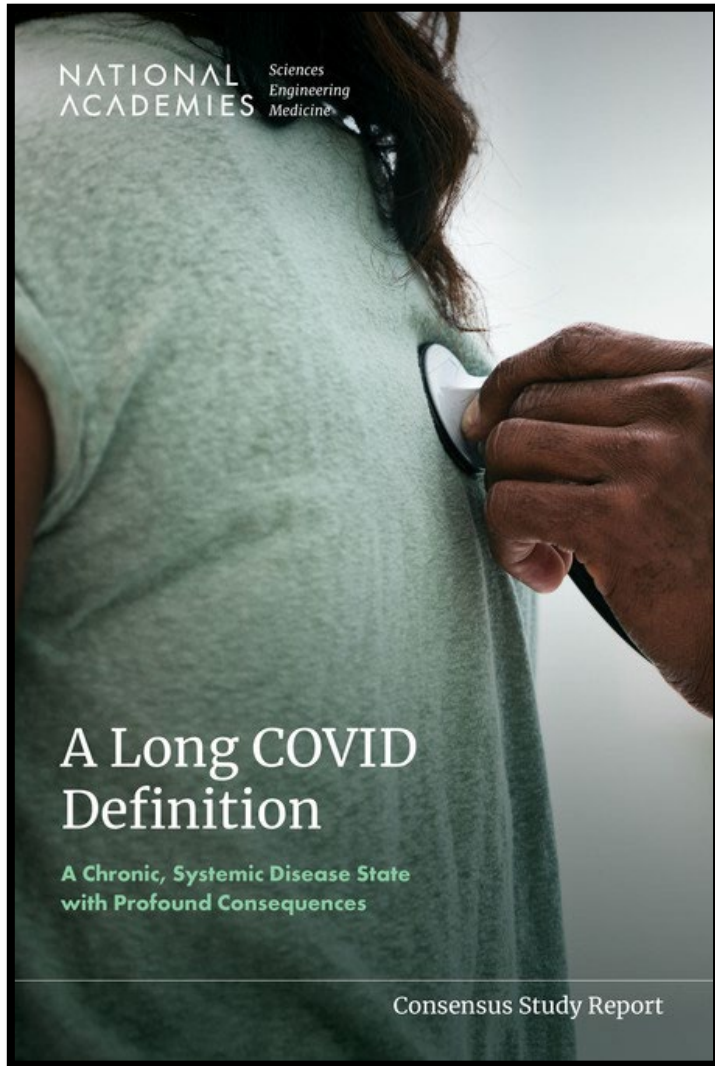
Melissa Solis, MD, CDPH





# Long COVID Updates

# UPDATE: 2024 NASEM\* Long COVID Definition



**Long COVID (LC) is an infection-associated chronic condition (IACC) that occurs after SARS-CoV-2 infection and is present for at least 3 months as a continuous, relapsing and remitting, or progressive disease state that affects one or more organ systems.**

## Important Features of Long COVID (LC):

- Ranges from mild to severe
- Can last months or years
- Can follow asymptomatic, mild, or severe COVID-19 infection
  - Does not require previous diagnosis of COVID-19
- Can occur right after infection or be delayed for months
- Affects children and adults
- Can be diagnosed on clinical grounds
  - No test currently available
- Impairs individuals' ability to live daily life
  - It can have a profound emotional and physical impact on patients and their families and caregivers

[Examining the Working Definition for Long COVID | National Academies](#)

# Who is at Risk for Long COVID?

## Original Investigation

March 23, 2023

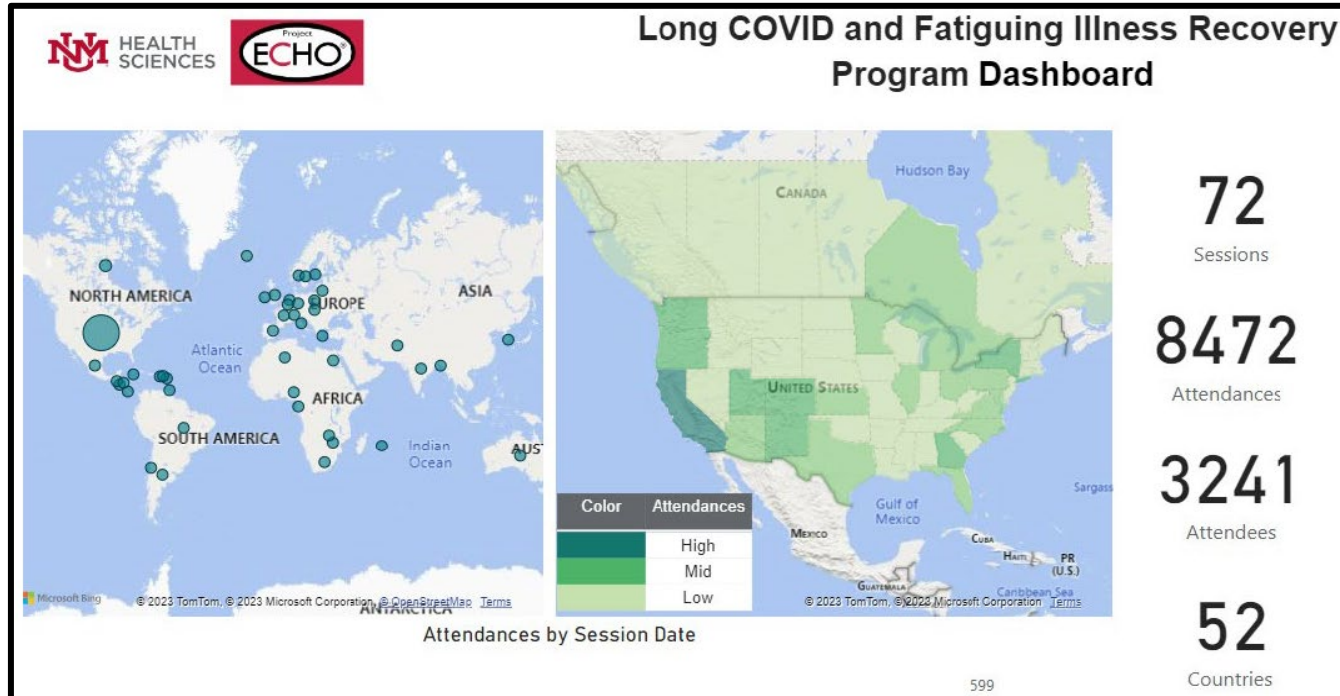
### **Risk Factors Associated With Post-COVID-19 Condition**

A Systematic Review and Meta-analysis

- Female sex
- Older age
- Severe *initial* COVID-19 illness (e.g. requiring hospitalization or intensive care)
- Higher body mass index
- Smoking
- Underlying health conditions
- Unvaccinated

[Risk Factors Associated With Post-COVID-19 Condition: A Systematic Review and Meta-analysis | Infectious Diseases | JAMA Internal Medicine | JAMA Network](#)

# National Efforts to Build Clinical Capacity



## Agency for Healthcare Research and Quality (AHRQ) Long COVID Care Network

Kennedy Krieger Institute, Baltimore, MD  
University of Pittsburgh, Pittsburgh, PA  
University of Texas Health Science Center, San Antonio, TX  
University of Washington, Seattle, WA  
Icahn School of Medicine at Mount Sinai, New York, NY  
Emory University, Atlanta, GA  
University of Colorado, Denver, CO  
Stanford University, Stanford, CA  
Washington University in St. Louis, St. Louis, MO

<https://www.ahrq.gov/coronavirus/long-covid/care-network.html>

Project ECHO - Long COVID and Fatiguing Illness Recovery Program: provider training and mentorship

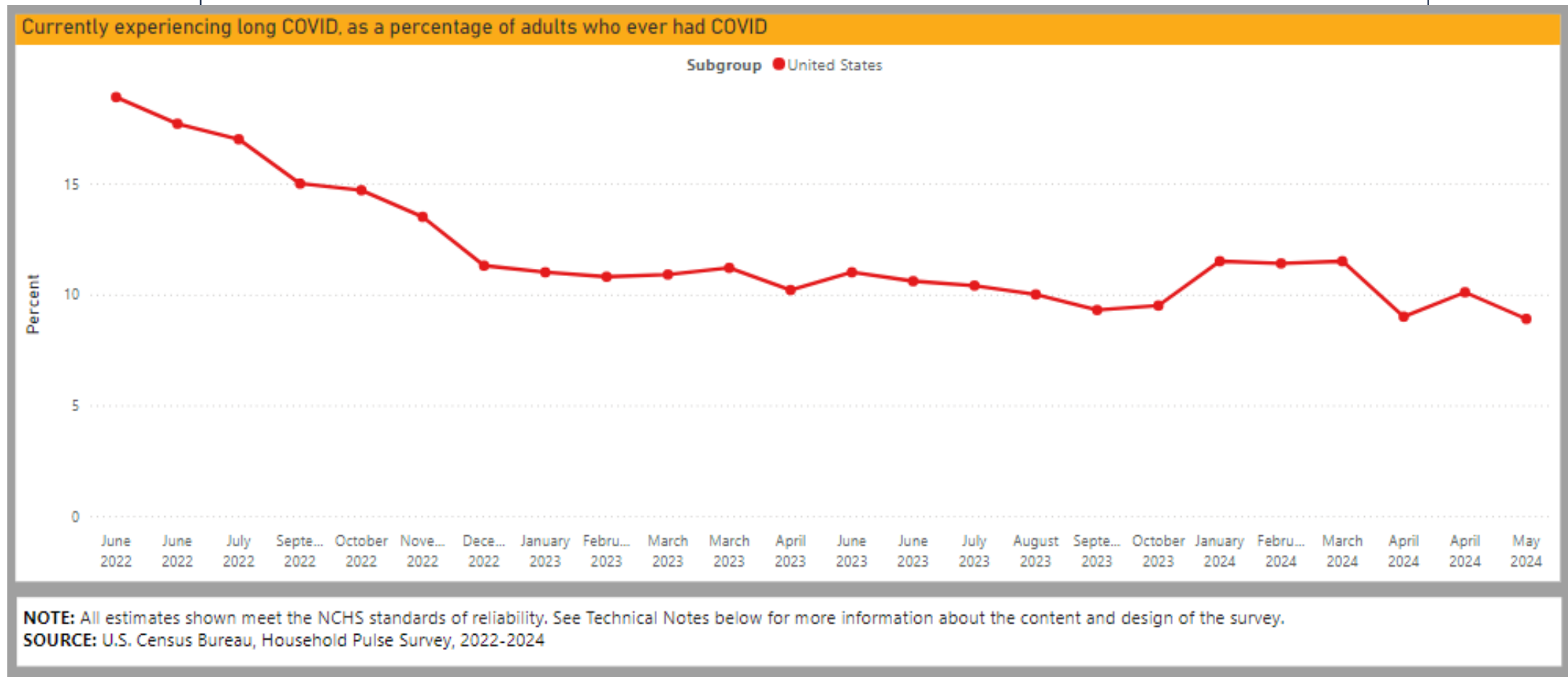
AHRQ has funded 9 Long COVID clinics

[AHRQ Long COVID Care Network | Agency for Healthcare Research and Quality](https://www.ahrq.gov/coronavirus/long-covid/care-network.html)

[Long COVID and Fatiguing Illness Recovery Program ECHO | iECHO](#)

# CDC Household Pulse Survey (HPS)

**Outcome measure:** Currently experiencing long COVID as a percentage of adults who

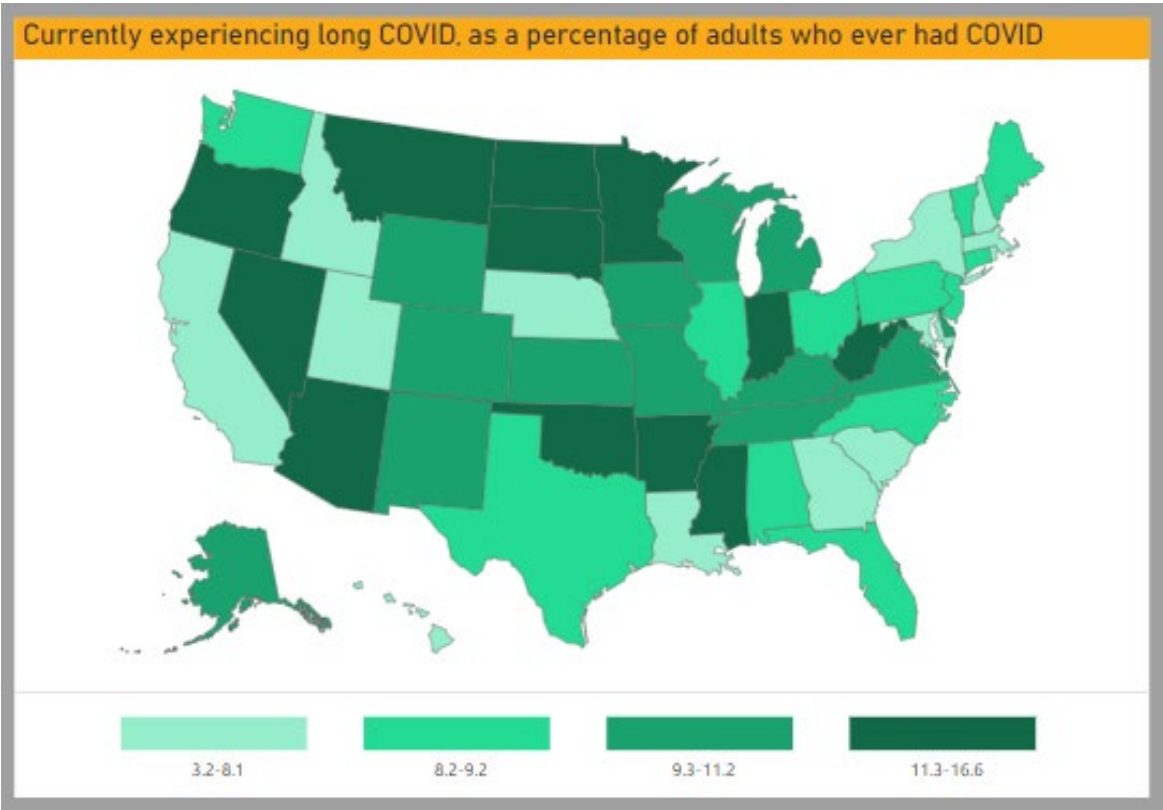
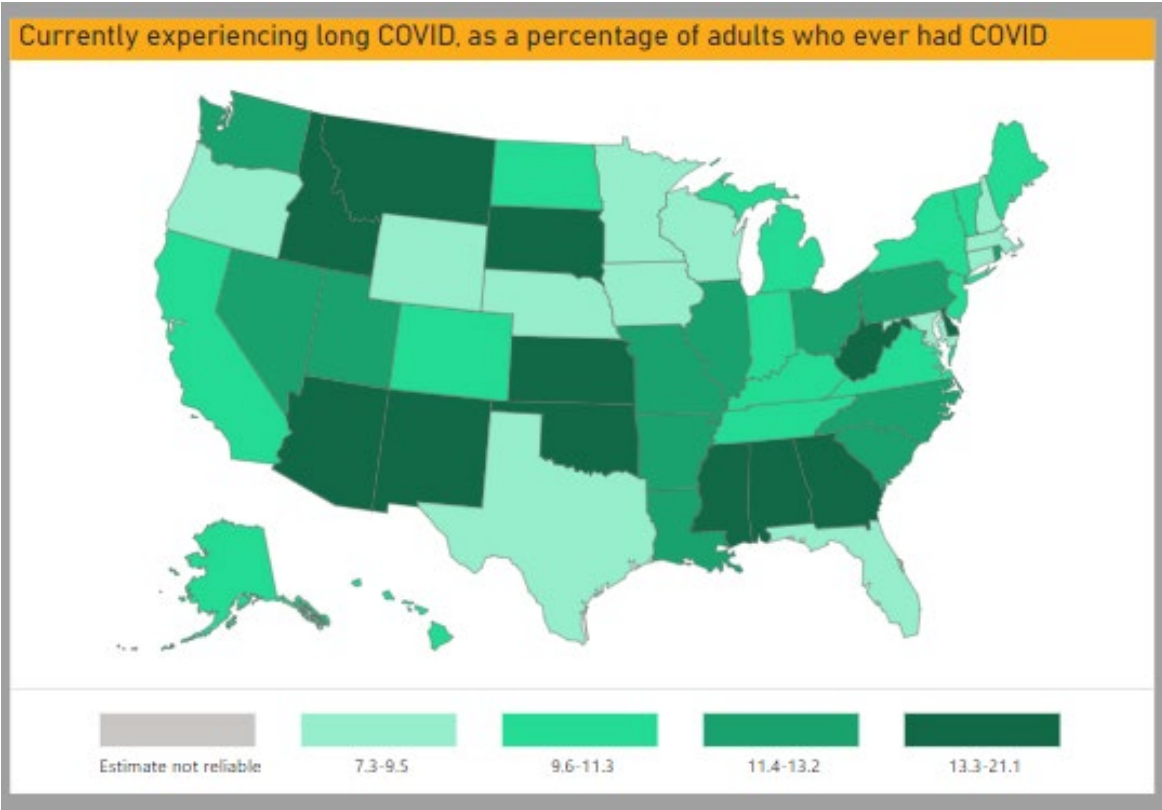




# Long COVID Prevalence in California – HPS Data

June 2023: 10.2%

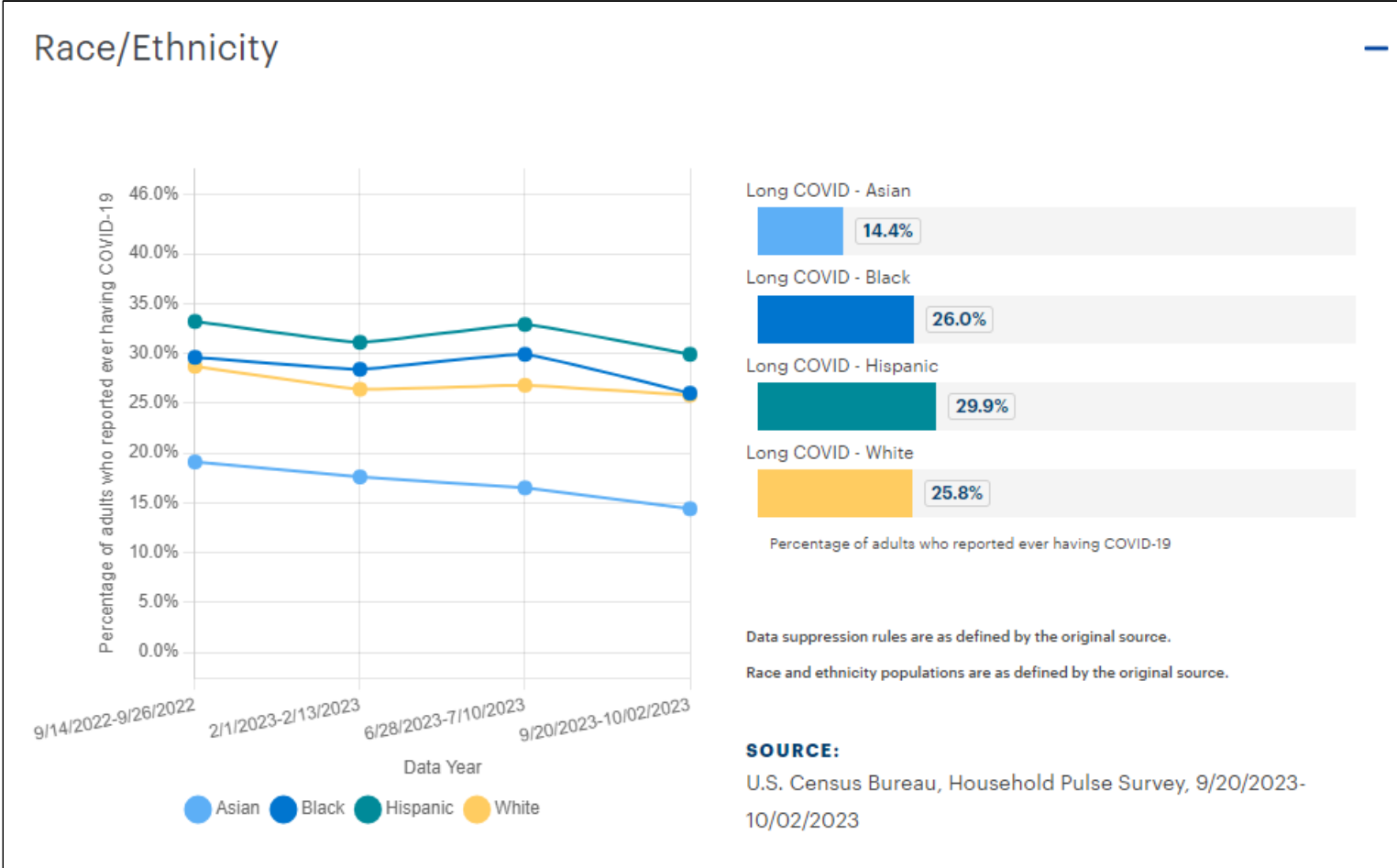
June 2024: 6.9%



<https://www.cdc.gov/nchs/covid19/pulse/long-covid.htm>

# Disparities in Long COVID – HPS Data September – October 2023

Hispanic and Black respondents are most likely to report Long COVID symptoms.



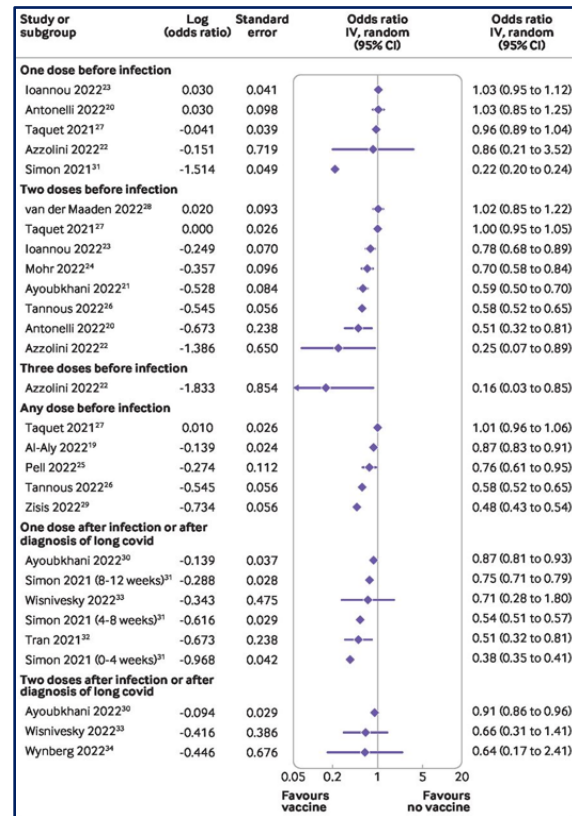


# Protective Effect of COVID-19 Vaccination on Long COVID

The NEW ENGLAND JOURNAL of MEDICINE

> BMJ Med. 2023 Feb 1;2(1):e000385. doi: 10.1136/bmjmed-2022-000385. eCollection 2023.

## Effect of covid-19 vaccination on long covid: systematic review

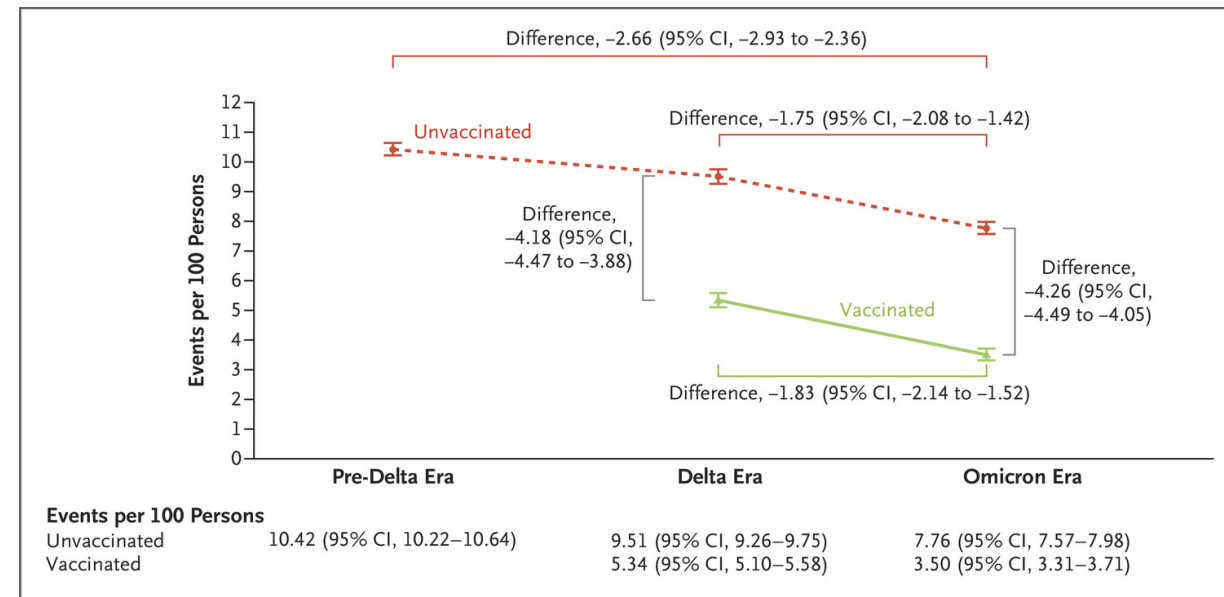


Multiple observational studies (and systematic reviews) have shown a significant reduction in the incidence of Long COVID.

## ORIGINAL ARTICLE

### Postacute Sequelae of SARS-CoV-2 Infection in the Pre-Delta, Delta, and Omicron Eras

Yan Xie, Ph.D., Taeyoung Choi, M.S., and Ziyad Al-Aly, M.D.



Postacute Sequelae of SARS-CoV-2 Infection in the Pre-Delta, Delta, and Omicron Eras | New England Journal of Medicine (nejm.org)



# COVID-19 Therapeutics

# Current Outpatient COVID-19 Treatments

Preferred outpatient therapies for **certain high-risk patients:**

- ✓ **Paxlovid** (Ritonavir – boosted nirmatrelvir)
- ✓ **Remdesivir**
- ✓ **Molnupiravir** (alternative therapy for use when the above therapies are not available, feasible to use, or clinically appropriate)

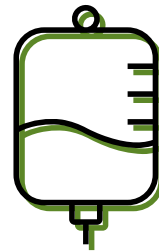
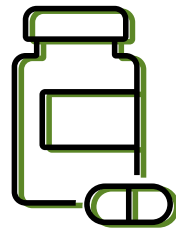


# COVID-19 Therapeutics Key Points

## COVID-19 treatments can help prevent severe illness in eligible\* patients

CDPH recommends that providers prescribe:

- ✓ Nirmatrelvir/ritonavir (Paxlovid) to non-hospitalized, symptomatic, and eligible patients
- ✓ Remdesivir (Veklury) should be considered when nirmatrelvir/ritonavir (Paxlovid) is clinically contraindicated
- ✓ Molnupiravir (Lagevrio) may be considered if remdesivir is impractical and Paxlovid is clinically contraindicated.



\*Eligibility depends on exposure status, symptoms, and [risk factors](#) for severe disease



Pemgarda (pemivibart)

# PEMGARDA (pemivibart): Emergency Use Authorization (EUA)

PEMGARDA has **not** been approved

PEMGARDA is **not** authorized for:

- × Treatment of COVID-19, or
- × Post-exposure prophylaxis of COVID-19 in individuals who have been exposed to someone infected with COVID-19



- 
- **EUA authorization** for the **pre-exposure prophylaxis (PrEP)** of COVID-19 in certain adults and adolescent individuals:

✓ Who are not currently infected with covid-19 and who have not had a known recent exposure to an individual with COVID-19

**-AND-**

✓ Who are moderately-to-severely immunocompromised and are unlikely to mount an adequate response to COVID-19 vaccination

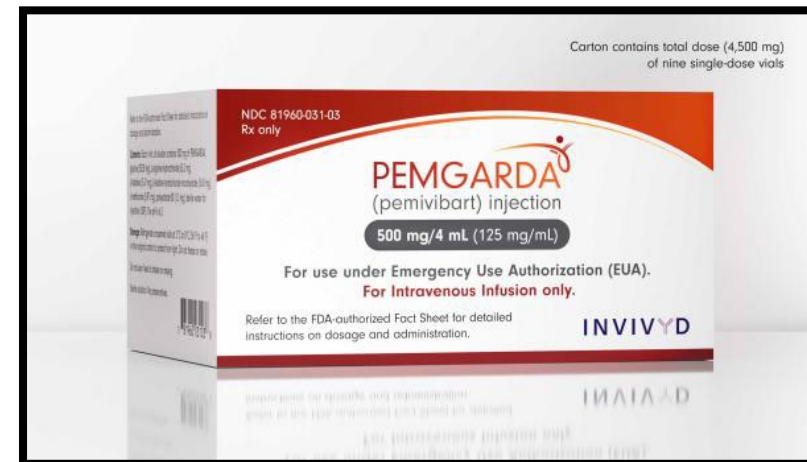


# PEMGARDA (pemivibart): What Healthcare Providers Need to Know

- Contraindicated in individuals with previous severe hypersensitivity reactions (anaphylaxis) to any component of Pempgarda
    - For individuals with a severe hypersensitivity reaction to a COVID-19 vaccine, consult with an allergist/immunologist
  - Please track all serious adverse events and medication errors.
    - Contact 800-890-3385
    - Complete and submit a MedWatch form
- [MedWatch: The FDA Safety Information and Adverse Event Reporting Program | FDA](#)

# PEMGARDA (pemivibart): How to Obtain and Prescribe

- PEMGARDA may only be prescribed by physicians, advanced practice registered nurses, and physician assistants who are licensed or authorized under State law.
- [Pemgarda Ordering Guide](#) (PDF)
- If you need further information, please contact the INVIVYD Medical Information Department at 1-800-890-3385 or [emailmedinfo@invivyd.com](mailto:emailmedinfo@invivyd.com).



PEMGARDA is currently available to order in the United States from the following specialty distributors.

**PEMGARDA NDC/UPC: 81960-031-03**

Cardinal Health	
Phone	855.855.0708
Email	<a href="mailto:gmb-spd-csorderentry@cardinalhealth.com">gmb-spd-csorderentry@cardinalhealth.com</a>
Portal	Specialty Online: <a href="https://specialtyonline.cardinalhealth.com">specialtyonline.cardinalhealth.com</a> Order Express: <a href="https://orderexpress.cardinalhealth.com">orderexpress.cardinalhealth.com</a>
Account Setup	866.677.4844
McKesson Plasma and Biologics	
Phone	877.625.2566
Email	<a href="mailto:mpborders@mckesson.com">mpborders@mckesson.com</a>
Portal	<a href="https://connect.mckesson.com/">https://connect.mckesson.com/</a>
Account Setup	<a href="mailto:mpbonboarding@mckesson.com">mpbonboarding@mckesson.com</a>
McKesson Specialty Care Distribution	
Phone	800.482.6700
Email	<a href="mailto:physvcscustcare@mckesson.com">physvcscustcare@mckesson.com</a>
Portal	<a href="https://mscs.mckesson.com/">https://mscs.mckesson.com/</a>
Account Setup	<a href="mailto:onboarding2@mckesson.com">onboarding2@mckesson.com</a>

Image: Pemgarda: Package Insert - Drugs.com